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ELECTRONIC SWITCHING SYSTEMS

NO. 3

DISTRIBUTE POINT APPLIQUE
CIRCUITSECTION I - GENERAL DESCRIPTION1. PURPOSE OF CIRCUIT

1.01 This circuit provides (four) facilities for operating relays or lamps at remote and local locations under control of the processor via the distribute point circuit. Options are provided for transmitting -48 V over a single wire, -48 V and ground over a pair, or loop closures or openings with battery and ground supplied from the distant end.

1.02 All common system circuits requiring processor controlled relays or lamps should be connected to this circuit.

SECTION II - DETAILED DESCRIPTION1. OPTIONS

1.01 To achieve maximum flexibility, seven wiring options are provided (see Table A). The V,X,Z option transmits -48 V (under processor control) either over a pair of wires (the other wire being ground) or over a single lead. In either case the MO and MM leads are paired to the combined distributing frame (CDF). If the transmission facility is a single-wire conductor, cross-connection is made only to the MO lead. In this case the MM lead serves to provide some degree of shielding for the MO lead. The single-wire option will be used to provide charging information to a remote hotel or motel PBX trunk by operating a relay located in the remote hotel or motel PBX. (A contact closure in this circuit provides charging information to the remote location).

1.02 The V,X,Z option only differs from the V,X,Z option by providing a contact open via the M1 lead instead of a contact closure.

TABLE A
WIRING OPTIONS

OPTION	WIRING*
Remote Circuit Requires Signaling Over Single Wire††	Closure: V, X, Z Open: U, X, Z
Remote Circuit Requires Signaling Over a Pair†	Closure: V, X, Z Open: U, X, Z
Remote Circuit Requires a Contact Closure Over a Pair†	Closure: V, Y Open: U, Y
Local Circuit Requires Two Transfer Contacts†	W, Y
Non-Dedicated Local Test Desk	DPAC0: W, Y, Z DPAC1: W, Y, Z DPAC2: S, W, Y DPAC3: S, W, Y

Notes: *Closure: Relay contact normally released.
Open: Relay contact normally operated.

†The MM lead is provided for 2-wire signaling. When single-wire signaling is used, the grounded MM lead serves as a shield for the MO or M1 lead.

‡When circuit 3 is used to provide the feature, the T option must also be provided.

1.03 The V,Y option provides a loop closure under processor control to operate a remote relay or lamp when the remote location provides battery and ground.

1.04 The U,Y option only differs from the V,Y option by providing a loop opening instead of a loop closure.

1.05 The W,Y option provides two relay transfer contacts when a local circuit requires two contacts. This option must not leave the office unless contact protection is provided.

1.06 The non-dedicated, local test desk option provides interface circuitry to control the remote testing circuit far end (SD-99311-01). This option requires four distribute point applique circuits (ie, one unit).

2. CIRCUIT

2.01 The resistance lamps and capacitors are provided to limit the current and voltage transients produced by normal circuit operation and/or foreign potentials that may be applied to the cable pairs.

2.02 Capacitors C1 and C2 terminate the M0 or M1 lead, depending on the option, when the A relay contact is open and thereby providing protection when the contact is used to control an inductive load. Capacitors C1 and C2 in conjunction with resistance lamps RL1 reduce the voltage transient produced when the contact closes. Resistance lamps RL1 and RL2 limit the current produced by a lightning surge or a cross to a foreign potential.

2.03 When using the W,Y option and/or the 1, 2 and 3 leads, inductive loads must not be connected to the M0, M1, MM, 1, 2, and 3 leads since these leads do not have contact protection. Inductive loads may be connected to these leads only if the load provides some form of contact protection. The W,Y option and leads 1, 2, and 3 are intended to stay within the office because of their lack of protection against voltage transients and high currents.

2.04 Relays A0 through A3, driven by -48 V, are under control of the processor via the distribute point circuit. Resistors R1 and R2 limit the current through the relay coil and distribute point when the relay is operated. To limit the transient voltage spike when the relay is released and to dissipate the relay-coil energy when released, diode CR1 is connected from the distribute point to -48V. The anode of the diode is connected to -48V.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

Typical

1.01 Single-wire -48 V operation provides 20 mA to an external 1850 ohms.

1.02 Limits vary with external-loop length, load resistance and current sensitivity, and ground potentials.

1.03 At the time of installation, a load current measurement may be necessary to insure proper operating current.

2. FUNCTIONAL DESIGNATIONS

<u>Designation</u>	<u>Meaning</u>
A(0-3)	Relay A; control operation of lamps or relays at a remote or local location.

3. FUNCTIONS

3.01 Provides the following under processor control:

- (a) Means of transmitting -48 V either over a pair of wires or over a single wire.
- (b) Loop closures or openings to remote location when required.
- (c) Two relay transfer contacts to a local circuit when required.

3.02 Provides limiting of voltage and current transients produced by normal circuit operation and/or foreign potentials.

3.03 Provides limiting of the maximum current that may flow through the circuit.

4. CONNECTING CIRCUITS

4.01 When this circuit is listed on a key sheet, the connecting information thereon is to be followed.

- (a) Distribute Point Circuit - SD-3H150-01.

5. MANUFACTURING TESTING REQUIREMENTS

Intermediate Requirements

- 5.01 None.

End Requirements

5.02 This circuit shall be tested to verify that it is wired in accordance with the schematic and wiring drawings, that requirements of the circuit requirements table are met, and that the circuit is capable of performing all functions stated in this circuit description.

6. ALARM INFORMATION

6.01 This circuit is fused individually with one fuse to the -48 V signal supply. If the fuse blows, it will cause a FA relay, in the frame that it is mounted on, to operate an alarm.

7. TAKING EQUIPMENT OUT OF SERVICE

7.01 Information on taking this circuit out of service can be found in IM-3H000 and ON-3H000.

SECTION IV - REASONS FOR REISSUE

D. Description of Changes

D.1 Added non-dedicated, local test desk option to provide interface circuitry to control the remote testing circuit far end (SD-99311-01).

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DEPT 5333-DJS-LEG

